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Jidiplatys quanyui gen. et sp. nov. (Dermaptera, Diplatyidae), a remarkable new earwig from China

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Abstract: A remarkable new genus and species of earwig, *Jidiplatys quanyui* **gen. et sp. nov.**, is described from Guangxi Province, southern China. The new taxon is assigned to the family Diplatyidae based on the general structure of the male genitalia and external morphology. *Jidiplatys* **gen. nov.** is readily distinguished from all previously described genera of Diplatyidae by the unique morphology of the external parameres, which possess a shallow basal cleft and a small conical tooth on the outer margin, as well as by the presence of semicircular sclerotized extensions fused with the bases of the external parameres. The new genus further differs from related genera by having a single virga within the genital lobe, paired elongated tufted median lobes on the male penultimate sternite, and elongate forceps bearing dense inner hair brushes. Comparisons with morphologically similar genera are provided. The discovery of this new earwig highlights the insufficiently explored diversity of Diplatyidae in southern China and emphasizes the taxonomic significance of male genital morphology in dermapteran systematics.

Keywords: Oriental Region, male genitalia, external paramere, taxonomy, Daming Mountain

权宇季丝尾蝼（革翅目，丝尾蝼科），中国一种特殊的新蠼螋

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摘要：本文描述了采自中国广西壮族自治区的革翅目一新属新种——权宇季丝尾蝼 *Jidiplatys quanyui* **gen. et sp. nov.**。基于雄性外生殖器及外部形态特征，新分类单元被归入丝尾蝼科 Diplatyidae。季丝尾蝼属 *Jidiplatys* **gen. nov.**可通过以下特征与丝尾蝼科其他已知属区分：阳茎基侧突具浅的近基部裂口及外缘小型圆锥状齿突，且阳茎前缘延伸形成与基侧突基部愈合的半圆形骨化结构。新属还具有单根阳茎端刺、雄性亚末腹板具一对极度延长且端部簇生刚刺的中叶，以及内缘具密集毛刷的细长尾铗等特征。文中对其与形态相近属进行了比较。该新分类单元的发现表明中国南方地区丝尾蝼科的多样性仍被严重低估，并进一步强调了雄性生殖器形态在革翅目系统分类研究中的重要意义。

关键词：东洋区，雄性生殖器，阳茎基侧突，分类学，大明山

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Introduction

The family Diplatyidae Verhoeff, 1902 is an ancient and morphologically specialized lineage of suborder Neodermaptera, currently containing 10 extant genera and more than 130 described species worldwide (Hopkins *et al*. 2026). Members of the family are mainly distributed in tropical and subtropical regions, especially in the Oriental, Afrotropical, and Neotropical realms. Diplatyids are readily recognized by the slender body form, relatively simple external morphology, and the highly characteristic structure of the male genitalia. Historically, the classification of Diplatyidae has undergone repeated revisions, particularly regarding the delimitation of genera and subgenera within the large and heterogeneous genus *Diplatys* Audinet-Serville, 1831. Numerous genera and subgenera were established by Steinmann (1974, 1986) mainly on the basis of male genital structures, especially the morphology of the parameres, virga, and genital lobes. Later, Srivastava (1992) and Gorokhov & Anisyutkin (1994) further refined the taxonomy of the family and emphasized the systematic importance of genital morphology in generic diagnosis.

In Diplatyidae, external morphological characters are often conservative and may show substantial interspecific similarity, making species-level and generic-level identification difficult when based solely on somatic characters. Consequently, the morphology of the male genitalia has become one of the most important sources of diagnostic characters in diplatyid taxonomy. Structures such as the configuration of the parameres, development of the external parameres, number and shape of virgae, and modifications of the penultimate sternite frequently provide reliable evidence for defining different groups within the family. Particularly notable are the modifications associated with the external parameres, which exhibit remarkable diversity among genera and are considered highly informative for generic classification (Steinmann 1986; Gorokhov & Anisyutkin 1994).

The diplatyid fauna of China remains inadequately studied despite several important taxonomic contributions during the past. Earlier studies recorded a number of Chinese species belonging to *Diplatys* and related genera (Chen & Ma 2004). However, many regions of southern China remain poorly surveyed, and additional undescribed taxa are likely to occur in subtropical montane habitats.

The present paper describes *Jidiplatys quanyui* **gen. et sp. nov.** from Guangxi, southern China. The new genus is distinguished by the peculiar structure of the external parameres bearing a basal conical tooth, the shallow basal cleft of the external paramere, the presence of semicircular sclerotized extensions fused to the base of the external parameres, the single virga within the genital lobe, and the highly modified male penultimate sternite with paired elongated tufted lobes. These characters clearly separate the new taxon from all previously known genera of Diplatyidae, including *Nannopygia* Dohrn, 1863 and *Songmaella* Gorokhov & Anisyutkin, 1994, which share partially similar external paramere modifications. The discovery of this remarkable taxon further highlights the underestimated diversity of Diplatyidae in China and emphasizes the continuing importance of detailed morphological investigations of male genital structures in dermapteran systematics.

Material and methods

Specimens examined in this study were hand-collected. Morphological observations were made using an SDPTOP SZM45 stereomicroscope (Sunny Optical Technology (Group) Co., Ltd., Zhejiang, China). Color images were captured with a Canon 5DSR digital camera (Canon, Tokyo, Japan) equipped with a Canon MP-E 65 mm 5× macro lens (Canon, Tokyo, Japan) or a Mitutoyo M Plan Apo 10× macro lens (Mitutoyo Corporation, Tokyo, Japan). Focus stacking was performed using Zerene Stacker 1.04 (Zerene Systems LLC, Richland, U.S.A.). Image optimization and plate preparation were carried out in Adobe Photoshop 2025 (Adobe Inc., San Jose, U.S.A.).

The holotype is deposited in the Insect Collection of Jiangsu University of Science and Technology (ICJUST), Jiangsu Province, China. Morphological terminology follows Steinmann (1986).

FIGURE 1. *Jidiplatys quanyui* **sp. nov.**, male holotype: **A** habitat forest in Daming Mountain **B** exact collecting site. Photos by Mr. Quan-Yu Ji.

Taxonomy

Order Dermaptera de Geer, 1773 革翅目
Family Diplatyidae Verhoeff, 1902 丝尾蝼科
Genus *Jidiplatys* gen. nov. 季丝尾蝼属

https://zoobank.org/9CFA1D82-F86A-4126-8979-5B315F9CC15B

Type species. *Jidiplatys quanyui* **sp. nov.**

Etymology. The generic name is dedicated to the renowned entomologist Mr. Quan-Yu Ji (China) in recognition of his long-term assistance and support in the author's entomological research.

Diagnosis. Among the ten extant genera currently assigned to Diplatyidae, only the males of *Nannopygia* and *Songmaella* possess an unmovable tooth along the outer margin of the external paramere (Gorokhov & Anisyutkin 1994). However, in both *Nannopygia* and *Songmaella*, the cleft between the inner and outer teeth is deep, with its opening situated near the apex of the external paramere (Steinmann 1986; Gorokhov & Anisyutkin 1994; Ma & Chen 2026). In contrast, the external paramere of *Jidiplatys* **gen. nov.** bears a shallow cleft with the opening located near the basal portion of the structure. In addition to the distinctive shape and position of the cleft of the external paramere, *Jidiplatys* **gen. nov.** is characterized by the presence of paired semicircular sclerites extending from the anterior margin of the paramere and fused with the base of the external paramere; such structures are absent in all other known genera of Diplatyidae. The new genus further differs from *Songmaella* in possessing a single virga within the genital lobe, whereas *Songmaella* possesses paired virgae (Gorokhov & Anisyutkin 1994). Apart from the male genital characters, *Jidiplatys* **gen. nov.** can be readily distinguished from all other diplatyid genera by the highly modified male penultimate sternite, which bears two extremely elongated median lobes with densely tufted apices, as well as by the elongate forceps provided with dense brushes of long setae along the inner margins.

FIGURE 2. *Jidiplatys quanyui* **sp. nov.**, male holotype: **A** habitus with terminalia removed, dorsal view **B** habitus with terminalia removed, ventral view. Scale bars = 1 mm.

***Jidiplatys quanyui* sp. nov. 权宇季丝尾蝼**

https://zoobank.org/532131DF-1B04-43AC-BE36-A57AC0D09E5F

Figs 1–5

Type material. Holotype: ♂ (ICJUST): **CHINA:** Guangxi Province, Nanning City, Shanglin County, Daming Mountain, Xiashuiyuan (Fig. 1A, B), 23.401709°N, 108.532224°E, 400 m, 1-VI-2024, Quan-Yu Ji.

Etymology. The species is named after the famous entomologist Mr. Quan-Yu Ji (China).

Diagnosis: As for the genus.

Description of holotype. *Size*. Body length without forceps (from anterior margin of head to posterior margin of ultimate tergite) ca. 16 mm; forceps length ca. 3.3 mm.

Head. Head entirely dark brown, wider than long, coronal sutures distinct (Fig. 2A, B); posterior margin concave medially. Compound eyes large, prominent, twice as long as length of head behind eyes. Antennae with at least 18 antennomeres; antennomere 1 elongated, narrowed basally, widened terminally, slightly shorter than distance between antennal bases; antennomere 2 wider than long; antennomere 3 1.5 × longer than antennomere 4, both cylindrical; subsequent antennomeres slender, nearly cylindrical.

Thorax. Pronotum mostly dark brown except for yellow posterior and posterolateral margins, nearly as long as wide, much smaller than head (Fig. 2A); anterior and posterior margins concave; lateral margins nearly rounded, with three obtuse angles; median longitudinal furrow distinct. Tegmina mostly dark brown except for yellow basal and median areas, slender, approximately 2.5 × longer than pronotum; lateral margin weakly keeled at shoulder; posterior margin rounded. Hindwing scales mostly dark brown except for yellow apices, nearly 2/3 in length of pronotum, with truncate hind margins. Legs slender; femur thick, dark brown in forelegs, yellow with a median dark spot in mid and hind legs; tibia thinner than femur, dark brown in forelegs, yellow in mid and hind legs; tarsi yellow to pale brown; tarsomere 1 slightly longer than combined 2 and 3.

FIGURE 3. *Jidiplatys quanyui* **sp. nov.**, male holotype: **A** terminalia, dorsal view **B** penultimate sternite, ventral view **C** terminalia, ventral view. Scale bars = 0.5 mm.

FIGURE 4. *Jidiplatys quanyui* **sp. nov.**, male holotype: **A** forceps, dorsal view **B** forceps, lateral view **C** forceps, ventral view. Scale bars = 0.5 mm.

Abdomen. Abdomen narrowed at segments 1–8, widest at ultimate tergite. Ultimate tergite nearly as long as wide (Fig. 3A); lateral margins broadly rounded; posterior margin shallowly concave medially, obliquely truncate laterally, forming two rounded processes. Penultimate sternite longer than wide, widened posteriorly (Fig. 3B); posterior margin strongly sinuate, with two rounded lateral lobes and two specialized medial lobes; medial lobes elongated, slender, basal 2/3 nearly glabrous, apical 1/3 covered with dense long spines. Abdominal sternum beneath penultimate sternite covered with dense dark stout spines (Fig. 3C). Pygidium small, subquadrate, with slightly concave posterior margin (Fig. 3C). Branches of forceps elongated, close at base, mostly straight, apically incurved and upcurved; inner margin fringed with dense dark bristles (Fig. 4A–C).

Genitalia. Paramere of genitalia generally elliptical (Fig. 5A, B); median incision of anterior margin deep and narrow, ending at basal 1/4 of paramere; each division of paramere with semicircular anterior extension covering and fused with base of external paramere. Genital lobe about half length of paramere. Virga within genital lobe darkly sclerotized, curved abruptly at basal 1/4; apical 1/4 forked into two spines, with a rounded disclike sclerite. External paramere nearly 3 × longer than wide, tapering toward apex; inner margin mostly straight, ridged both dorsally and ventrally, forming a truncate inner surface; external margin mostly straight, basal 1/4 with a small, nearly as long as wide, conical tooth.

FIGURE 5. *Jidiplatys quanyui* **sp. nov.**, male holotype: **A** genitalia, dorsal view **B** genitalia, ventral view. Scale bars = 0.5 mm.

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